

REMARKS

I. Introduction

In response to the Office Action dated January 3, 2006, Applicants have amended claim 1 by incorporating the features of claim 3, which has been canceled. No new matter has been added. In view of the foregoing amendments and the following remarks, Applicants respectfully submit that all pending claims are in condition for allowance.

II. Claim Rejections Under 35 U.S.C. §§ 102 and 103

Claims 1, 4 – 6, and 9 – 11 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent Application Publication No. 2003/0057444 to Niki. Claims 1, 5, 6, 8 – 11, and 13 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,495,862 to Okazaki. Claims 2 and 3 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Niki. Claims 2, 3, 7, and 12 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okazaki. Applicants traverse these rejections for at least the following reasons.

Claim 1, as amended, recites a semiconductor light-emitting device comprising a transparent layer provided on the semiconductor multilayer film and having projections/depressions of a two-dimensional periodic structure at an upper surface thereof to diffract light from the active layer at the projections/depressions and guide the diffracted light to an outside of the semiconductor multilayer film, wherein, when a period of the projections/depressions is L and a wavelength of the light from the active layer in the element is λ , $\lambda \leq L \leq 20\lambda$ is satisfied. At least these feature are not taught or suggested by Niki or Okazaki, alone or in combination with each other.

Niki discloses a semiconductor light emitting device. The Examiner equates the open electrode 34 of Niki with the transparent layer recited in claim 1. The openings of the open electrode 34 of Niki apparently may be used to transmit light, reduce light absorption in the electrode, and improve efficiency of light emission (*see, e.g.*, paragraphs 0075 – 0076). In contrast, as recited in claim 1, the projections/depressions in the present invention diffract light. When light is merely transmitted, there is no need to limit corrugated surfaces to a two-dimensional periodic structure, as recited in claim 1. Thus, one would not consider limiting the period of the projections/depression to 1 to 20 times the wavelength in view of Niki.

Furthermore, Niki discloses that it is preferable for an area of the openings to be provided as large as possible (*see, e.g.*, paragraphs 0075 – 0076). In contrast, the projections/depression recited in claim 1 are formed such that the period of the projections is 1 to 20 times the wavelength. If an area of the openings is provided as large as possible, as recited by Niki, it would not be possible to obtain the period recited in claim 1. Accordingly, it would not have been obvious to one of ordinary skill in the art to provide the period of the projections/depression, as alleged in the Office Action.

Niki further discloses that, in a device having unevenness on a substrate, light that inherently propagates laterally or downwardly is scattered or diffracted to go upwardly (*see* paragraph 0027). Thus, any diffraction that may occur would occur at the substrate and not in the open electrode 34. Accordingly, even if the open electrode 34 could be considered the transparent layer recited in claim 1, the open electrode does not include projections/depression of a two-dimensional periodic structure at an upper surface thereof to diffract light from the active layer, as recited in claim 1.

Okazaki also fails to teach or suggest the features of claim 1 recited above. Okazaki discloses that the efficiency of leading out light can be improved by using refraction of light at corrugated surfaces (*see, e.g.*, column 4, lines 26 – 34 and column 8, lines 15 – 18). However, Okazaki neither discloses nor suggest the diffraction of light, as recited in claim 1. When light is merely refracted, there is no need to limit corrugated surfaces to a two-dimensional periodic structure, as recited in claim 1. Thus, one would not consider limiting the period of the projections/depression to 1 to 20 times the wavelength. Accordingly, it would not have been obvious to one of ordinary skill in the art to provide the period of the projections/depression, as alleged in the Office Action.

Thus, as anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference, *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983), and at a minimum, both Niki and Okazaki, fail to disclose a semiconductor light-emitting device comprising a transparent layer having projections/depressions of a two-dimensional periodic structure at an upper surface thereof to diffract light from the active layer at the projections/depressions and guide the diffracted light to an outside of the semiconductor multilayer film, wherein, when a period of the projections/depressions is L and a wavelength of the light from the active layer in the element is λ , $\lambda \leq L \leq 20\lambda$ is satisfied, it is clear that neither reference anticipates claim 1.

Furthermore, as each and every limitation must be disclosed or suggested by the cited prior art references in order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 (see, M.P.E.P. § 2143.03), and neither Niki nor Okazaki, alone or in combination with each other does so, it is respectfully submitted that claim 1 is patentable over these references.

Claims 2 and 4 – 12 depend from claim 1. Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplicatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 1 is patentable for the reasons set forth above, it is respectfully submitted that all dependent claims are also in condition for allowance.

III. Conclusion

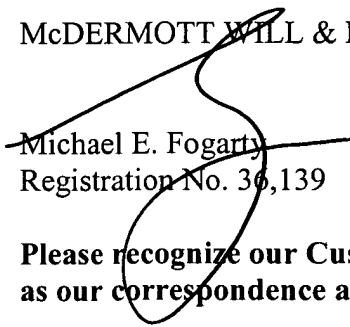
Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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